Erasmus Mundus MSc in Network and e Business Centred Computing For students entering in 2009

Awarding Institutions:	The University of Reading,
	Aristotle University, Thessaloniki
	University Carlos III, Madrid
Teaching Institutions:	The University of Reading,
	Aristotle University, Thessaloniki
	University Carlos III, Madrid
Faculty of Science	
Programme length:	18 months
Date of specification:	September 2009
Programme Director:	Prof. Vassil N. Alexandrov
Board of Studies:	MSc in Network and e Business Centred Computing
Accreditation:	

Summary of programme aims:

- To prepare the future professionals for the digital economy to be capable of understanding the technical underpinnings and business opportunities of the new economy.
- To provide in-depth study and training encompassing state-of-the-art principles and techniques in students chosen specialist e-business route. This is provided through having a set of in-depth specialist modules.
- To provide students with research and development skills through a substantial 6-month research and development project undertaken in one of the participating institutions.
- To provide the students with an opportunity to study in a multi-cultural environment sharing knowledge with other students from different background.

Transferable skills covered are personal effectiveness, interpersonal skills, teamwork, technical communication (oral and written) and interview techniques, project management, self-management, risk assessment, efficient deployment of software tools, computer systems evaluation, marketing and business awareness for the streams with more business orientation as well as research and technical writing skills.

Programme content: The program content gives a broad and in-depth coverage of state-of-the-art network computing and e-business, including network computing; modern programming languages; tools and environments for network-centred computing; tools and environments for scientific computation; e-payments and security; Business-to-Business and Business-to-Consumer Technologies; knowledge discovery, data mining and web development.

Graduates will be well equipped to pursue a career in the area of e-business and mobile network computing, or business information systems design and development in industry and/or research respectively.

The programme is divided into Part 1, the taught modules, which are divided into three, each taught in a different University; and Part 2 the dissertation. All modules are compulsory – they are listed below.

Part 1

CORE MODUL	LES taught in University of Reading (20ECTS)	ETCS	Level
SEMC1A	Advanced Programming on UNIX	5	7
SEMC02	Network Computing	5	7
SEMC03	Advanced Computer Architecture	5	7
SEMC05	Internet Computing Environments	5	7

SEMC06	Transferable Skills	5	7
MODULES tau	ight in Aristotle University (20 ECTS)	ETCS	Level
SEMC51	Human – Computer Interaction	5	7
SEMC52	Computational Intelligence and e Business	5	7
SEMC53	Databases and Knowledge Mining	5	7
SEMC54	Introduction to e-Business Technologies	5	7
MODULES tau	ight in Carlos III University (20 ECTS)	ETCS	Level
SEMC61	Network Infrastructure	5	7
SEMC63	B2B Technologies	5	7
SEMC64	B2C Technologies	5	7
SEMC65	Network Security and Electronic Payment	5	7
Part 2			
MODULES tau	ight in any of the four universities	ETCS	Level
SEMC8A	Dissertation Project	30	7

Modular Arrangements:

This is a year and a half program of 90 ECTS consisting of two parts, Part1: taught component – 60 ECTS and part2: dissertation project worth 30 ECTS.

Part 1 consists of three terms in each of the partner universities where the taught modules are given as follows:

Term1: University of Reading, 4 modules- 20ECTS

Term2: Aristotle University of Thessaloniki, 4 modules – 20 ECTS

Term3; University CarlosIII Madrid, 4 modules - 20 ECTS

Part 2 (Term 4) consists of the dissertation project, worth 30 ECTS, which may be taken in University of Reading, Aristotle University of Thessaloniki or University Carlos III Madrid

Part-time arrangements

Currently there is no part-time provision.

Progression requirements

To progress from Part 1 to Part 2 a student must achieve a weighted average of at least 50% over all the Part 1 modules, to have no module mark below 40% and, for the modules taught at each University, have no more than one module mark between 40%-49%.

Summary of teaching and assessment

Teaching/learning methods and strategies

Part 1 of this degree comprises a series of one to two week long modules taught in four different terms. Each module consists usually of 30 contact hours lectures/practicals (labs) and expects overall work from the student worth 5 ECTS. The Dissertation Project module is 24 weeks and is worth 30 ECTS.

Acquisition of knowledge is achieved through lectures, practicals and seminars. More advanced knowledge and concepts are gained based on the above techniques and through teamwork, team and individual projects, and directed and self-paced study and learning.

Assessment

Assessment methods are specified for each module. These are exams, project assignments, oral presentations and dissertation.

<u>Mark Interpretation</u> 50 - 100% Good standard (Pass) 0 - 49% Unsatisfactory Work

To pass the MSc students must both meet the progression requirements above and gain a mark of 50% or more on the Dissertation.

Admission requirements

Entrants to this programme are normally required to have obtained:

First Cycle Degree in Sciences, e.g. BSc, BEng or other: A good honours degree with sufficient mathematical content and computing experience or equivalent qualification and background. Typically, graduates in Computer Science, Cybernetics, Engineering, Mathematics and Physics, or in joint Mathematics/Computer Science will be acceptable.

First Cycle Degree with non-science background or Graduates in other disciplines may be admitted to the programme if their level of computing experience is assessed by the programme leaders as being sufficient to undertake the relevant stream of the programme, e.g. depending on the level of programming experience the applicants have. Applicants with a good degree in Economics, Business related studies, Law, Psychology or Pedagogies or equivalent qualifications and background as approved by the consortia are acceptable.

In more detail we evaluate:

- The grade of their first cycle degree (at least 70% of the scale used to mark academic performance in the University that issued the degree). The equivalent standard will be expected from students with different backgrounds.
- The grades on courses of the first cycle curriculum that are associated with the content of the postgraduate program
- The grade of the candidate's undergraduate dissertation
- Professional or research experience relative to the content of the postgraduate program
- Two reference letters
- Publications in refereed journals (where appropriate)
- Results of a personal interview
- Proven good command of the English language (the Cambridge Certificate of Proficiency, or IELTS 6.5 or equivalent TOEFEL score)

Admissions Tutor: To be appointed by the Board of Studies of the MSc in NeBCC.

Support for students and their learning

University support for students and their learning falls into two categories. Learning support includes IT Services, which has several hundred computers and the University Library, which across its three sites holds over a million volumes, subscribes to around 4,000 current periodicals, has a range of electronic sources of information and houses the Student Access to Independent Learning (S@IL) computer-based teaching and learning facilities. There are language laboratory facilities both for those students studying on a language degree and for those taking modules offered by the Institution-wide Language Programme.

Student guidance and welfare support is provided by Personal Tutors, School Senior Tutors, the Students' Union, the Medical Practice and the Student Services Centre. The Student Services

Centre is housed in the Carrington Building and includes the Careers Advisory Service, the Disability Advisory Service, Accommodation Advisory Team, Student Financial Support, Counselling and Study Advisors. Student Services has a Helpdesk available for enquiries made in person or online (www.risisweb.reading.ac.uk), or by calling the central enquiry number on (0118) 378 5555. Students can get key information and guidance from the team of Helpdesk Advisers, or make an appointment with a specialist adviser; Student Services also offer drop-in sessions on everything from accommodation to finance. The Carrington Building is open between 8:30 and 17:30 Monday to Thursday (17:00 Friday and during vacation periods). Further information can be found in the Student Diary (given to students at enrolment) or on the Student website (www.reading.ac.uk/student).

The teams in Reading and in the partner universities provide academic support for students as well as help organising accommodation, bank accounts, liaise with language centres to arrange relevant language courses, support the students in obtaining the relevant visas etc. Student support during the terms taught away from Reading is handled by the teaching institution on place.

Career prospects

The program is an example of the collaboration with industry in creating a model ICT curricula through the Career Space consortium (<u>www.career-space.com</u>). It is focused towards following job profiles: *Software Architecture and Design, Systems Specialist, Communications Network Design, Software & Applications Development, Multimedia Design, Data Communications Engineering, IT Business Consultancy, Product Design.*

Opportunities for study abroad or for placements

This is a joint degree and as such the students are required to have period of studies at least in three out of four institutions in the Consortium.

All the students are enrolled on the programme in Reading.

- During the first term (3 months) students take the core modules worth 20 ECTS and are examined on these modules at UoR.
- They move to Greece to take the second set of modules (3 months) worth of 20 ECTS and examined on these modules at AUTh.
- At the third term (semester) they are in Madrid for 3 months and take modules worth of 20 ECTS credits and examined at UC3M.
- After the taught part the students start 24 weeks (6 months) project to be completed with a Dissertation. The students can take the project in any of the partners of the consortium depending on the project.

Educational aims of the programme

The Erasmus Mundus MSc program in Network and e-Business Centred Computing takes a netcentric approach and aims to teach the students of the new way to conduct multidisciplinary research and business oriented design, focusing on Network Computing and Communication, e Business, and Software Engineering & HCI.

Acquired Competences and Learning Outcomes: The programme gives advanced knowledge from the computing area through the core modules and complements the general technology issues of the network computing on one side and the business issues on the other side with set of specialized modules.

These modules provide the student with:

(a) advanced in dept knowledge in the area of Networking and some Architecture and Programming issues.

- (b) theoretical and practical knowledge on how to build human-computer interfaces on a network computing environment that can influence the user because the design is based on knowledge on the perception and cognition abilities of the human.
- (c) knowledge and tools for developing intelligent mechanisms for user searching and processing data and knowledge with the purpose of predicting sales, customer trends and financial cash flows.
- (d) theoretical knowledge on how to organize and conduct business electronically and practical knowledge on how to implement e-business applications.

A. Knowledge and understanding of:	Teaching/learning methods and
□ Understanding how to solve complex	strategies
business problems in a networked	
environment	Acquisition of knowledge is achieved
□ Algorithmic thinking, advanced	through lectures, practicals and seminars.
models of computation, analysis of	More advanced knowledge and concepts
algorithms, techniques for its	are gained based on the above techniques
estimation and measurement,	and through teamwork, team projects,
existence of intractable problems	and individual projects and directed and
□ Knowledge of advanced	self-paced study and learning.
programming and communication	
techniques for networked	
architectures	
□ Knowledge of Web based systems	Assessment
and building Web applications	Assessment methods are specified for
☐ Multimedia data technologies	each module. There are exams, project
□ Network security	assignments, oral presentations and
□ Specific body of e-business related	Dissertation.
knowledge through specialized	
modules.	

Knowledge and Understanding

Skills and other attributes

B. Intellectual skills – able to:	Teaching/learning methods and
	strategies
Integration of Theory and practice	
☐ Critical evaluation of software	Project work, tutorials, seminars and
environments, their limitations and	coursework assignments. Open-ended
suggest improvements	project work is permitting the students to
□ Synthesise information from data for	demonstrate the achievements of all
decision making	learning outcomes in this category.
□ Advanced decision making	
□ Demonstrate skill necessary to plan	
and conduct advanced research	Assessment
□ Demonstrate ability to understanding	
and explain advanced concepts,	Through formal examination, coursework
principles and theory related to	and practical and project work. Methods
Network Centered Computing and	for assessment are: research reports,
Computing Applications in e-business	essays, oral presentations open and closed
	book examination.

C. Practical skills – able to:	Teaching/learning methods and strategies
 Critically evaluate the problems and choose appropriate methods and algorithms for their efficient solution. Applying advanced methods and techniques for solving complex problems Use advanced theories and concepts to explain complex processes Manage practical projects efficiently Consider and analyse the problem to be solved from multidisciplinary 	 Practical skills are developed through a practical project work, tutorials and course work assignments. Especially the open-ended project and practical work is designed to permit students to show achievement of all the learning outcomes in this category. The skills are taught embedded as integral part of various modules.
 point of view. Efficiently deploy appropriate theory, practices and tools for the design, evaluation and implementation of computer systems 	Assessment The skills are assessed via the course work assessment as parts of the mark are awarded for achieving a level of skill appropriate for a postgraduate student (as recommended by the professional bodies in the field).
D. Transferable skills – able to:	Teaching/learning methods and
 Capacity to learn intensively Capacity to communicate efficiently by written and verbal means To write research reports and papers To do efficient search of information and select the relevant one. Problem solving skills Ability to work as part of a team Ability to work independently Project planning and time/task management through individual/team 	 strategies A separate module on Transferable Skills which includes lectures, practical exercises, formal oral presentations and written assignments. These skills are further developed throughout the programme through assignments, team projects and team work as well as tutorial and seminar work. Assessment
project	Coursework assignments, Essays, Technical Reports, Seminars and Formal Presentations.

Please note: - This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the module description and in the programme handbook. The University reserves the right to modify this specification in unforeseen circumstances, or where the process of academic development and feedback from students, quality assurance processes or external sources, such as professional bodies, requires a change to be made. In such circumstances, a revised specification will be issued.

This program is governed by the Multilateral Agreement for Collaboration between the degree awarding universities.